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CLAIMS

1. A unit for separating gas by cryogenic distillation, comprising a system of columns (13, 15), means for sending a gas (11) to be separated to one column of the column system, means for withdrawing at least one product (33, 35, 39, 41) from the column system, means for sending a gas (23, 45) of the unit, possibly at least one portion of the gas mixture to be separated, into a turbine (11) with bearings, and means for sending at least one portion of the gas expanded in the turbine to one column of the column system (13, 15) if the expanded gas constitutes at least one portion of the gas mixture to be separated, characterized in that the bearings of the turbine are rolling bearings.
2. The unit as claimed in claim 1, in which the turbine (11) has unoled bearings.
3. The unit as claimed in claim 2, in which the turbine (11) has unlubricated bearings.
4. The unit as claimed in one of the preceding claims, in which the gas (1) to be separated contains oxygen and/or nitrogen and/or hydrogen and/or methane and/or carbon monoxide as main components.
5. The unit as claimed in claim 4, in which the expanded gas (23) is air, nitrogen or hydrogen.
6. The unit as claimed in one of the preceding claims, in which the turbine (11) is installed at least one meter above the floor, preferably at least two meters above the floor or even at least five meters above the floor.

7. The unit as claimed in one of the preceding claims, in which the turbine (11) is braked by a brake booster (9), possibly of the centrifugal type, placed on the same shaft as the turbine, all the bearings of this common shaft being unlubricated.  
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8. The unit as claimed in claim 7, in which all the bearings of the common shaft are of the rolling bearing type.  
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9. The unit as claimed in one of claims 1 to 6 according to 1 in which the turbine is braked by a brake generator whose bearings are unlubricated.  
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10. The unit as claimed in claim 9, in which the bearings of the brake generator are of the magnetic type.  
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11. A method of separating a gas mixture by cryogenic distillation, in which a gas mixture (1) to be separated is sent to a column (13) of a column system (13; 15), at least one product is withdrawn from the column system, at least one portion of a gas (23, 45) of the unit, possibly at least one portion of the gas mixture to be separated, is sent into a turbine (11) with bearings, characterized in that the bearings of the turbine are rolling bearings.  
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12. The method as claimed in claim 11, in which the turbine (11) is braked by a brake generator whose bearings are unlubricated and the brake generator is driven at the same speed as the turbine.  
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